

REMARKS

I. Introduction

Claims 8 to 14 are pending in the present application. In view of the following remarks, it is respectfully submitted that all of the presently pending claims are allowable, and reconsideration is respectfully requested.

II. Specification

Regarding the discussion on page 2 of the Final Office Action that relates to the Specification, it is noted that no objection was stated. To the extent that this discussion was intended to constitute an objection to the Specification, it is noted that 37 C.F.R. § 1.77(b) provides that “[t]he specification should include” -- but is not required to include -- “the following sections in order,” as recited on page 2 of the Final Office Action. Thus, the sections listed in the Final Office Action are not requirements, but only guidelines. It is respectfully submitted that the Specification complies with all applicable requirements.

III. Objection to the Drawings

Regarding the objection to the drawings, while 37 C.F.R. § 1.83(a) requires the drawings to show every feature specified in the claims, it also provides that “conventional features disclosed in the description and claims, where their detailed illustration is not essential for a proper understanding of the invention, should be” -- but are not required to be -- “illustrated in the drawing in the form of a graphical drawing symbol or a labeled representation.” Furthermore, 37 C.F.R. § 1.83(a) is subject to 37 C.F.R. § 1.81(a), which provides that “[t]he applicant for a patent is required to furnish a drawing of his or her invention where necessary for the understanding of the subject matter sought to be patented.” The features of claims 8 and 9, as recited in the Final Office Action on page 3, need not be illustrated since a detailed illustration thereof is not essential for a proper understanding of the claimed subject matter. It is respectfully submitted that those of ordinary skill in the art would properly and readily understand the above features disclosed in the description and the claims, without need for further illustration.

In view of all of the foregoing, withdrawal of the objection to the drawings is respectfully requested.

IV. Rejection of Claims 8 to 10 and 12 to 14 Under 35 U.S.C. § 103(a)

Claims 8 to 10 and 12 to 14 were rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of Applicants' allegedly admitted prior art ("the AAPA") and U.S. Patent No. 6,078,203 ("Zafarana"). It is respectfully submitted that the combination of the AAPA and Zafarana does not render unpatentable the presently pending claims for at least the following reasons.

In order for a claim to be rejected for obviousness under 35 U.S.C. § 103(a), the prior art must teach or suggest each element of the claim. See Northern Telecom, Inc. v. Datapoint Corp., 908 F.2d 931, 934 (Fed. Cir. 1990), cert. denied, 111 S. Ct. 296 (1990); In re Bond, 910 F.2d 831, 834 (Fed. Cir. 1990). In addition, as clearly indicated by the Supreme Court, it is "important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the [prior art] elements" in the manner claimed. See KSR Int'l Co. v. Teleflex, Inc., 127 S. Ct. 1727 (2007). Further, the Supreme Court in KSR noted that the analysis supporting a rejection under 35 U.S.C. 103 should be made explicit. M.P.E.P. §2143.

Claim 8 relates to a converter, including, *inter alia*, the features of a device adapted to sense currents fed to an electric motor powered by the converter, the device arranged inside the converter, signals of the device fed to a nonlinear filter, output signals of the nonlinear filter fed to an additional filter that is connected to an analog-to-digital converter.

The AAPA is identified in the Final Office Action as the material appearing on page 1, lines 5 to 13 of the Specification, to wit:

In the case of converters, it is conventional that the actual value I_{actual} of the motor current can be measured, the current-sensing device being situated in the converter. The signals provided by the current-sensing device of the control electronics are initially supplied to a filter 1, e.g., a PT1 filter, as shown in Figure 1. Therefore, microcontroller 2 is provided with filtered measuring signals, and interference signals become suppressible. The PT1 filter may take the form of a low-pass filter having a time constant of, e.g., 20 μ s.

As acknowledged in the Final Office Action at page 4, the AAPA does not disclose a nonlinear filter, where output signals of the nonlinear filter are fed to an additional filter. The AAPA also does not disclose an additional filter that is

connected to an analog-to-digital converter, as presently claimed. Instead, the AAPA discusses a device in which signals provided by a current-sensing device of control electronics are initially supplied to a filter, and the filtered measuring signals are then provided to a microcontroller to suppress interference signals.

Zafarana does not overcome the critical deficiencies noted above with respect to the AAPA. Zafarana discloses a non-linear voltage regulator for an automotive alternator. Zafarana is cited in the Final Office Action for the disclosure in Figure 3 of providing output signals from a nonlinear filter to a linear filter. However, Zafarana lacks any disclosure relating to an electric motor powered by the presently claimed converter that includes a device adapted to sense currents fed to the electric motor. Rather, Zafarana discloses a voltage regulator, which has a linear filter, a comparator, and a stretcher filter, connected in cascade with one another between an input terminal and an output terminal of the regulator. The input terminal receives an error signal converted by the comparator into a square-wave error signal, and the output terminal delivers a square-wave output control signal, having a stretched duty cycle over the square-wave error signal by a time delay introduced from the stretcher filter. See Zafarana, column 3, lines 14 to 24. As cited in the Final Office Action, Figure 3 of Zafarana discloses a voltage regulator 1. At column 3, lines 35 to 43, Zafarana discloses:

The regulator 1 comprises a linear filter 2, specifically of the low-pass type, a comparator 3, and a stretcher filter 4, which are connected, in cascade with one another, between an input terminal I1 and an output terminal O1 of the regulator 1.

In particular, the linear filter 2 has an input terminal I2 connected to the input terminal I1 of the regulator 1, and an output terminal O2 connected to an input terminal I3 of the comparator 3. The latter has an output terminal O3 connected to an input terminal I4 of the stretcher filter 4. The stretcher filter 4 has an output terminal O4 connected to the output terminal O1 of the regulator 1.

One of ordinary skill in the art would understand from Figure 3 that the input terminal I2 of the linear filter 2 receives signals from the non-linear filter of the non-linear filtering section 5 of the regulator 1.

Zafarana clearly discloses that the linear filter, comparator, and stretcher filter are connected in cascade with one another. One of ordinary skill in

the art following the disclosure of Zafarana would understand that the output from a linear filter should be supplied to a comparator, and the output of the comparator should then be supplied to a stretcher filter. That is not the arrangement presently claimed. Rather, one of ordinary skill in the art following the disclosure of Zafarana would not connect the output of the disclosed linear filter 2 to an analog-to-digital converter. Thus, even if one of ordinary skill in the art combined the disclosure of Zafarana with the AAPA, the resulting combination would not provide the presently claimed converter.

Nonetheless, the Final Office Action at page 8 asserts that “[o]ne of ordinary skill in the art should know to exclude the comparator and stretcher filter.” However, as described above, Zafarana merely describes a linear filter, comparator, and stretcher filter that are intended to be cascaded together. In this regard, Zafarana describes at column 1, lines 35 to 54, and 65 to 67 that a linear filter alone is not sufficient to filter out a noise signal. Thus, a comparator is needed to produce a square wave, and a stretcher filter is further required to suppress spurious comparator switchings. Moreover, in order to completely remove spurious comparator switchings, Zafarana provides a non-linear filtering section. See Zafarana, column 5, lines 25 to 29. Thus, according to Zafarana, the non-linear filtering section is effective only because it is used in combination with the linear filter, comparator, and stretcher filter cascaded together. Accordingly, contrary to the assertions of the Final Office Action, one of ordinary skill in the art would not be motivated to exclude the comparator and stretcher filter as described by Zafarana, since those elements are essential to the proper function of the device of Zafarana.

Accordingly, it is respectfully submitted that the combination of the AAPA and Zafarana does not disclose, or even suggest, all of the features included in claim 8. Therefore, it is respectfully submitted that the combination of the AAPA and Zafarana does not render unpatentable the presently pending claims for at least the foregoing reasons.

As for claims 9, 10, and 12 to 14, which ultimately depend from and therefore include all of the features included in claim 8, it is respectfully submitted that the combination of the AAPA and Zafarana does not render unpatentable these dependent claims for at least the reasons more fully set forth above in support of the patentability of claim 8.

In view of all of the foregoing, withdrawal of this rejection is respectfully requested.

V. Rejection of Claim 11 Under 35 U.S.C. § 103(a)

Claim 11 was rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of the AAPA, Zafarana, and U.S. Patent No. 3,714,470 ("Goldberg"). It is respectfully submitted that the combination of the AAPA, Zafarana, and Goldberg does not render unpatentable the present claim for at least the following reasons.

Claim 11 ultimately depends from claim 8. As more fully set forth above, the combination of the AAPA and Zafarana does not disclose, or even suggest, all of the features included in claim 8. Goldberg also does not disclose, or even suggest, all of the features included in claim 8, and thus, fails to cure this critical deficiency. In this regard, Goldberg is cited in the Final Office Action for the alleged disclosure of a run-up transmitter including a comparator and an integrator. However, even if one of ordinary skill in the art would combine the disclosure of Goldberg with the AAPA and Zafarana, the resulting combination would not provide the presently claimed converter. As such, it is respectfully submitted that the combination of the AAPA, Zafarana, and Goldberg does not render unpatentable claim 11.

Accordingly, it is respectfully submitted that the combination of the AAPA, Zafarana, and Goldberg does not disclose, or even suggest, all of the features included in claim 8, from which claim 11 ultimately depends. As such, it is respectfully submitted that the combination of the AAPA, Zafarana, and Goldberg does not render unpatentable claim 11, which ultimately depends from claim 8.

In view of all of the foregoing, withdrawal of this rejection is respectfully requested.

VI. Conclusion

It is therefore respectfully submitted that all of the presently pending claims are allowable. All issues raised by the Examiner having been addressed, an early and favorable action on the merits is earnestly solicited.

Respectfully submitted,

Date: April 8, 2010

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